Clinical and dermoscopic characteristics of melanomas on nonfacial chronically sun-damaged skin

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Background: Melanomas on chronically sun-damaged skin (CSDS) can be difficult to identify and often manifest morphologic features that overlap with benign lesions.

Objective: We describe and analyze the clinical and dermoscopic characteristics of melanomas on nonfacial CSDS.

Methods: Melanoma cases on nonfacial CSDS were retrospectively identified from the biopsy specimen logs of 6 melanoma clinics. Clinical and dermoscopic images were combined into 1 database. Demographics, clinical, dermoscopic, and histopathologic information were analyzed. Descriptive frequencies were calculated.

Results: One hundred eighty-six cases met the inclusion criteria: 142 melanomas in situ (76%) and 39 invasive (21%; mean thickness, 0.49 mm). Lentigo maligna was the most common histopathologic subtype (n = 76; 40.9%). The most frequent dermoscopic structures were granularity (n = 126; 67.7%) and angulated lines (n = 82; 44%). Vascular structures were more frequent in invasive melanomas (56% vs 12% of in situ melanomas). Most manifested 1 of 3 dermoscopic patterns: patchy peripheral pigmented islands, angulated lines, and tan structureless with granularity pattern.

Limitations: This was a retrospective study, and evaluators were not blinded to the diagnosis. In addition, interobserver concordance and sensitivity and specificity for dermoscopic structures were not evaluated.

Conclusion: Outlier lesions manifesting dermoscopic structures, such as granularity, angulated lines, or vessels and any of the 3 described dermoscopic patterns should raise suspicion for melanoma. (J Am Acad Dermatol 2015;72:1027-35.)

Key words: actinic damage; dermoscopy; lentigo maligna; melanoma; sun-damaged skin; ultraviolet radiation.

Identifying melanomas located on chronically sun-damaged skin (CSDS) is challenging because their characteristics often clinically overlap with benign lesions (Fig 1). Dermoscopy has proven useful in detecting and differentiating melanoma from many benign lesions, including

Abbreviations used:

CSDS:	chronically sun-damaged skin
SSM:	superficial spreading melanoma
LM:	lentigo maligna
PPPI:	patchy peripheral pigmented islands

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solar lentigo and seborrheic keratosis.[1-3] The dermoscopic attributes associated with melanomas on facial CSDS, primarily lentigo maligna (LM), are well described. These descriptions may be dependent on the specific histologic structure of the facial skin (ie, closely packed pilosebaceous units, absence of rete ridges). The differing structure of nonfacial CSDS (ie, epidermal atrophy and variable flattening of the dermoepidermal junction) may affect the appearance of LM and other melanoma subtypes on patients with nonfacial CSDS, and their dermoscopic features remain to be clearly defined. In this case series, we describe and analyze the clinical and dermoscopic characteristics of 186 melanomas located on nonfacial CSDS with the aim of improving knowledge of the clinical and dermoscopic characteristics of these melanomas.

CAPSULE SUMMARY

- Dermoscopic attributes associated with amelanotic melanoma, superficial spreading melanoma, lentigo maligna, acral lentiginous melanoma, and nodular melanoma are well described.
- We report the clinical and dermoscopic characteristics of melanomas on nonfacial chronically sun-damaged skin.
- These findings will improve the early detection of melanomas on nonfacial chronically sun-damaged skin.

METHODS

Cases of melanomas on nonfacial CSDS skin were retrospectively identified from the biopsy specimen log and image database of 6 dermatology and primary care skin cancer clinics (Memorial Sloan-Kettering Cancer Center, New York, NY; Skin and Cancer Associates, Plantation, FL; Melanoma Signature Skin Cancer Centre, Brisbane, Australia; Northern Rivers Skin Cancer Clinic, Ballina, Australia; Beenleigh Family Practice, Brisbane, Australia; and Hermit Park Clinic and Skin Cancer Care, Townsville, Australia). This study was conducted in accordance with the institutional review board at Memorial Sloan-Kettering Cancer Center. Nonfacial CSDS was defined as any anatomic site that fulfilled 1 of the following characteristics: location on the upper aspect of the back, chest, or upper extremities; location on other sites, such as the lower aspect of the back, abdomen, legs and thighs with signs of sun damage, such as moderate to severe numbers of lentigines or at least a moderate degree of solar elastosis present in the skin biopsy specimen.

Inclusion criteria consisted of biopsy-proven melanomas located on nonfacial CSDS with high quality clinical and dermoscopic images. Melanomas on the head, neck, volar surface, breasts, genitalia, and buttocks were excluded. In addition, melanomas arising in association with a nevus proven by pathology, melanomas from which previous biopsy specimens had been obtained, and recurrent melanomas were excluded.

Two authors evaluated the clinical and dermoscopic characteristics of all lesions (N.J. and A.A.M.). Information collected for each case included age, sex, and histopathologic (ie, Breslow thickness, subtype, and solar elastosis), clinical (ie, location, size, color, borders, outlier lesion, and background skin), and dermoscopic characteristics. Clinical colors included light brown, dark brown, blue-gray, white, pink, and black. Background skin was evaluated for signs suggestive of CSDS, such as excessive and/or large lentigines, and for the presence of other benign lesions. Solar lentigines surrounding the melanoma (evaluated from the overview images) were quantified and graded into few (<20), moderate (20-100), or severe (>100) in number.

Dermoscopic images were captured with polarized and/or nonpolarized dermoscopy and were assessed for the presence or absence of previously described melanoma-specific structures[4] (Supplemental Table I). The presence or absence of angulated lines and a blue-white veil required uniform consensus of 3 authors (N.J., A.A.M., and H.R.). Descriptive frequencies were reported.

RESULTS

Of 186 cases that met the inclusion criteria, 112 (60%) patients were male and 62 (33%) were female. The average patient age was 68.5 years (range, 37-93 years). There were 142 (76.3%) in situ and 39 (21%) invasive melanomas (average thickness, 0.49 mm [range, 0.12-1.6 mm]). LM was the most common histopathologic subtype (n = 76; 40.9%), followed by superficial spreading melanoma (SSM; n = 42; 22.6%). Twenty-one cases (11.3%) revealed a combination of 2 subtypes of melanoma (Table I).

Lesions were located on the back (n = 89; 47.8%), upper extremities (n = 61; 32.8%), chest and lower extremities (n = 16; 8.6% each), and abdomen (n = 4; 2.2%). The majority were outlier lesions (n = 142; 76.3%), with poorly defined borders (n = 126; 67.7%) and an average largest diameter of 9.44 mm (range, 3-40 mm). The background skin surrounding each melanoma revealed signs of CSDS, including solar